



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,282	10/13/2005	Norito Doi	Q87437	5063
23373	7590	03/28/2006	EXAMINER	
SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			KRUER, KEVIN R	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/531,282

Applicant(s)

DOI ET AL.

Examiner

Kevin R. Kruer

Art Unit

1773

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/14/05</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement filed April 14, 2005 has been fully considered. An initialed copy of said IDS is enclosed herein.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4, 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kameda et al (US 3,988,392) in view of JP10-306192 (herein referred to as Tadokoro).

Kameda teaches a polymer composition consisting of 95-50wt% methyl methacrylate homopolymer or copolymer and 5-50wt% of a crosslinked elastomer. The methyl methacrylate polymer may comprise up to 20% of at least one copolymerizable vinyl or vinylidene copolymer (col 2, lines 12+). The elastomer is obtained by copolymerizing a mixture of alkyl acrylate, allyl acrylate, and/or allyl methacrylate, and benzyl acrylate. Said elastomer is graft polymerized with methyl methacrylate (abstract) in amount of 10-100pbw of the weight to the crosslinked elastomer (col 6, lines 40+).

The elastomer has a particle size of 500-25000 angstrom (col 2, lines 26+) and has a crosslinking agent content of 0.5-5pbw (col 3, lines 48+). The composition may be used alone to make a film or utilized in a laminate (col 8, lines 4+).

Kameda does not explicitly state the claimed limitation (d). However, Kameda does teach that the elastomer should have a particle size of 500-2500A and a crosslinking agent content of 0.5-5pbw. Said teachings equate to a crosslinking agent content equal to $0.002d-0.1d$, wherein d is the average particle size of the elastomer. Furthermore, Kameda teaches the crosslinking content should be controlled such that the elastomer's degree of the swelling is 3-20 and the gel content is not less than 80% (col 3, lines 68+). Thus, it would have been obvious to one of ordinary skill in the art to optimize the crosslinking content of the elastomer taught in Kameda in order to control its degree of swelling and gel content. By doing so, the skilled artisan can control the processability, luster, transparency, and impact resistance of the composition. The examiner notes the claimed limitation d will also be optimized as the crosslinking content of the elastomer is optimized.

Kameda does not teach the composition should have a reduced viscosity of methyl ethyl ketone soluble matter in the resin composition of 0.2-0.8dl/g. However, Tadokoro teaches a composition comprising an acrylic matrix and a multi-layered acrylic elastomeric graft polymer (abstract). Tadokoro teaches the reduced viscosity of said composition should be controlled in order to control the processability of said composition (0001-0004). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to optimize the reduced viscosity of

the resin composition taught in Kameda. The motivation for doing so would have been to control the processability of said composition.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kameda et al (US 3,988,392) in view of JP10-306192, as applied to claims above, and further in view of WO02/085620A1 (herein referred to as Nishimura).

Kameda is relied upon as above, but does not teach the graft should comprise two stages wherein the outer stage comprises the claimed methyl methacrylate content. However, Nishimura teaches a resin composition comprising a methyl methacrylate © polymer and an impact modifying multiplayer graft polymer. The graft polymer comprises a rubber base and a two-stage polymerization to form the graft (page 6, last paragraph). The rubber base may comprise an acrylic rubber. The first stage is not limited. The second stage comprises methyl methacrylate and 1-40wt% of a reactive monomer. The presence of said reactive monomer results in a blend that is processable and that exhibits excellent impact resistance (page 2, first paragraph). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add a second stage to the graft copolymer taught in Kameda, wherein that second stage comprises methyl methacrylate and 1-40wt% of a reactive monomer. The motivation for doing so would have been to obtain a blend that exhibits impact resistance and processability. Furthermore, it would have been obvious to optimize the reactive monomer content of said second stage of the graft in order to control the composition's impact resistance, appearance, and processability.

Art Unit: 1773

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R. Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773